

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 is dependent on canceled claim 5, therefore, it is indefinite. For purposes of applying prior art, claim 6 is considered to be dependent on claim 1.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. **Claims 1-4, 6, 7, 9, and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Karabinis (US PAT # 5,937,332)** herein after referred as **Karabinis**, in further view of **Brankovic (US Patent # US 6,198,460 B1)** herein after referred as **Brankovic**.

4. **Regarding claim 1, Karabinis** discloses an apparatus for repeating a downlink signal from a satellite to a mobile station in a shadow area (**Karabinis: Abstract & Fig 2-7, Column 1 lines [17-32] ,[46-60], column 4 lines [61-67], Karabinis discloses repeating a downlink signal**), the apparatus comprising:

a receiving unit for receiving the downlink signal and amplifying the received downlink signal from the satellite (**Karabinis: Fig 2: 210 & Fig 3: 250 discloses receiving unit with amplifier that amplifies downlink signal received from satellite Fig 2:110**);

a radiating unit (**Karabinis: Column 5 lines [11]**) for radiating the amplified downlink signal to the shadow area (**Karabinis: Column 4 lines [65]**); and a feeding unit for feeding the amplified downlink signal to the radiating means (**Karabinis: Fig 2 & column 5 lines [6-21]**) describes the process where repeater receives downlink signal, amplifies it and retransmits to the mobile station which provides means for feeding the amplified downlink signal to the

radiating means),

wherein the radiating unit comprises:

a dual transmitting antenna **(Karabinis: Fig 6 discloses both the antennas are coupled by a hinge, hence a dual transmitting antenna)** provided with a first micro strip patch array antenna **(Karabinis: Fig 3: 210:185 Col 5 lines [48-54] discloses first antenna)** and a second micro strip patch array antenna **(Karabinis: Fig 3: 290:175 Col 5 lines [64] Col 6 line [8] discloses second antenna);** and

a divider for dividing the amplified downlink signal to a first portion and a second portion, and passing the first portion to the first micro strip patch array antenna and the second portion to the second micro strip patch array antenna **(Karabinis: Col 3 lines [27-30] discloses antenna isolation, hence a divider that isolates downlink signals between two antennas),**

Where the dual microstrip patch array antenna is used only as a transmitting antenna (This is intended use, intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim **(Karabinis: Col. 8 lines [1—21] disclose antenna radiating downlink signal)).**

and Wherein the radiating downlink signal received by the mobile station is adjustable from any changes to the shadow area and a direction the mobile station travels, **(Karabinis: Fig 6-7, Col. 7 lines [61-63], Col. 8 lines [1—21] disclose antenna radiating downlink signal is adjustable from any changes to the shadow area and direction the mobile travels).**

However, Karabinis fails to explicitly state “symmetrical” dual transmitting antenna &

Wherein the dual microstrip patch array antenna is formed symmetrically to the divider for only radiating the downlink signal in the shadow area for maximizing the downlink signal received by the mobile station in the shadow area, however, the examiner maintains that it was well known in the art to provide Symmetrical dual transmitting antenna and Wherein the dual microstrip patch array antenna is formed symmetrically to the divider for only radiating the downlink signal in the shadow area for maximizing the downlink signal received by the mobile station in the shadow area as taught by **Brankovic**.

5. In a similar field of endeavor, **Brankovic** discloses Flat antenna for mobile satellite communication. In addition **Brankovic** disclose symmetrical dual transmitting antenna & Wherein the dual microstrip patch array antenna is formed symmetrically to the divider for only radiating the downlink signal in the shadow area for maximizing the downlink signal received by the mobile station in the shadow area (**Brankovic: Fig 4- 6 , Col. 5 lines [9-23] discloses both the antennas are can be set to variable angle position with respect to divider and at 45 degree angle it will become symmetrical, hence a symmetrical dual transmitting antenna**).

6. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **Karabinis** by specifically providing "symmetrical" dual antenna, for the purpose of receiving & transmitting proper signal.

7. Regarding claim 2, **Karabinis** in view of **Brankovic** discloses the apparatus of claim 1, wherein the receiving unit comprises:
a micro-strip patch array antenna (**Karabinis: Fig 2: 210 is patch array antenna i.e. micro strip patch array antenna**) for receiving the signal from the satellite; and

an amplifier for amplifying the received signal (**Karabinis: Fig 3:250 & 280**) from the micro-strip patch array antenna (**Karabinis: Fig 2: 210**). This claim is rejected for the same motivation as claim 1.

8. **Regarding claim 3, Karabinis** in view of **Brankovic** discloses the apparatus of claim 2, wherein the radiating unit is installed in the shadow area (**Karabinis: Column 4 lines [65]**). This claim is rejected for the same motivation as claim 2.

9. **Regarding claim 4, Karabinis** in view of **Brankovic** discloses the apparatus of claim 2, wherein the micro-strip patch array antenna (**Karabinis: Fig 2: 210**) and the amplifier (**Karabinis: Fig 3:250 & 280**) are implemented as one piece (**Karabinis: Fig 2 & 3**) and further comprises a probe (**Karabinis: Fig 3: connecting probe is between 170 to 250 & 280**) for transiting the signal received from the micro-strip patch array antenna to the amplifier. This claim is rejected for the same motivation as claim 2.

10. **Regarding claim 7, Karabinis** in view of **Brankovic** discloses the apparatus of claim 1, wherein the receiving unit is located at a position where a line of sight to the satellite (**Karabinis: Fig 2:110 & 210 are in line of sight**) is secured. This claim is rejected for the same motivation as claim 1.

11. **Regarding claim 6 & 9, Karabinis** in view of **Brankovic** discloses everything in claim 1 (**Applicant has cancelled claim 5, hence the examiner is assuming claim 6 depending from**

claim 1), as above, however **Karabinis** in view of **Brankovic** fails to disclose apparatus's intended use specifically as shadow area being overpass or underpass. **However, the examiner** maintains that it was well known in the art at the time of invention to interpret shadow area as underpass or overpass.

Karabinis describes shadow area as signals into buildings, foliage, transportation vehicles, and other objects which can reduce link margin (**Karabinis: column 2 lines [6—65]**), it is obvious to one ordinary in the art to interpret it as underpass or overpass as in both situation it reduces link margin of the apparatus disclosed. This claim is rejected for the same motivation as claim 1.

12. **Regarding claim 10, Karabinis** in view of **Brankovic** discloses the apparatus of claim 1, wherein the first micro strip patch array antenna and the second micro strip patch array antenna are coupled by a hinge (**Karabinis: Col 8 lines [1-17] discloses Flap or cover attached with a hinge between first and second antenna and as further shown in fig 6 both the antennas are coupled by a hinge**) to tilt a radiation angle of the symmetrical dual transmitting antenna (**Karabinis: Fig 6 discloses both the antennas are coupled by a hinge & hence at certain angle position it becomes symmetrical, hence a symmetrical dual transmitting antenna**). This claim is rejected for the same motivation as claim 1.

Response to Arguments

13. Applicant's arguments filed on 02/08/2010 have been fully considered but they are moot due to amendment to the claims.

- a. Applicant's argument on page 5 ¶ 0002 regarding Office action fails to put suffix

“et al.” for Lindenmeier, however the Examiner respectfully disagree as page 3 of Office action dated (12/10/2009) lines [3-4] disclose Lindenmeier et al. herein after referred as Lindenmeier.

b. Applicant’s argument on page 6 ¶ 0001- page 6 ¶ 0005, page 7 ¶ 0002- page 8 ¶ 0001 regarding amended claim 1 are moot in view of new grounds of rejection.

c. In response to Applicant's argument that the references fail to show certain features of applicant’s invention, it is noted that the features upon which applicant relies (i.e., Applicant’s argument on page 6 ¶ 0006- page 7 ¶ 0001 regarding Lindenmeier fails to disclose equally divided signal to symmetrical formed antennas and page 9 ¶ 0002- page 9 ¶ 0003 regarding Karabinis and Lindenmeier fails to disclose adjustable radiating angles of the first and second microstrip patch array antennas) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

d. Applicant’s argument on page 7 ¶ 0002 regarding Karabinis fails to disclose “an apparatus for repeating a downlink signal from a satellite to a mobile station in a shadow area having receiving unit for receiving the downlink signal and amplifying the received downlink signal from the satellite; a radiating unit for radiating the amplified downlink signal to the radiating unit” however, the Examiner respectfully disagree, Please refer to this and the previous Office Action.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Munjal Patel whose telephone number is (571)270-5541. The examiner can normally be reached on Monday - Friday 9:00 AM - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on 571-272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. P./
Examiner, Art Unit 2617